

WHAT IS CLAIMED IS:

- 1 1. A device, comprising:
2 a sleep recovery circuit operable to transition from a first signal detection
3 mode to a second signal detection mode in response to detection of a first signal
4 characteristic in an input signal, and to transition from the second signal detection
5 mode to a third operational mode in response to detection in the input signal of a
6 second signal characteristic different from the first signal characteristic.
- 1 2. The device of claim 1, wherein power consumption by the sleep
2 recovery circuit in the first signal detection mode is less than power consumption
3 by the sleep recovery circuit in the second signal detection mode.
- 1 3. The device of claim 2, wherein the third operational mode
2 corresponds to a full-power mode of operating the device
- 1 4. The device of claim 2, wherein the third operational mode
2 corresponds to a third signal detection mode, and the sleep recovery circuit is
3 operable to transition from the third signal detection mode to a fourth operational
4 mode in response to detection in the input signal of a third signal characteristic
5 different from the first and second signal characteristics.
- 1 5. The device of claim 1, wherein the sleep recovery circuit comprises
2 a first signal detector operable to detect the first signal characteristic in the input
3 signal, and a second signal detector operable to detect the second signal
4 characteristic in the input signal.
- 1 6. The device of claim 5, wherein only one of the first and second
2 signal detectors is enabled at a time.
- 1 7. The device of claim 6, wherein the first signal detector is enabled
2 and the second signal detector is disabled during the first signal detection mode.
- 1 8. The device of claim 6, wherein the second signal detector is enabled
2 and the first signal detector is disabled during the second signal detection mode.

1 9. The device of claim 2, wherein the first signal detector detects a
2 direct current characteristic of the input signal.

1 10. The device of claim 9, wherein the second signal detector detects an
2 alternating current characteristic of the input signal.

1 11. The device of claim 9, wherein the second signal detector detects at
2 least one of a frequency characteristic of the input signal and a pulse-width
3 characteristic of the input signal.

1 12. The device of claim 1, wherein the sleep recovery circuit transmits
2 output data consistent with a sleep mode of operating the device during the first
3 and second signal detection modes.

1 13. The device of claim 12, wherein the sleep recovery circuit transmits
2 output data comprising a loss-of-signal output set to a true state during the first
3 and second signal detection modes.

1 14. The device of claim 12, wherein the sleep recovery circuit blocks
2 transmission of output data corresponding to data of the input signal during the
3 first and second signal detection modes.

1 15. The device of claim 1, wherein the sleep recovery circuit transmits
2 output data corresponding to data of the input signal during the third mode of
3 operating the device.

1 16. The device of claim 16, wherein the sleep recovery circuit transmits
2 output data comprising a loss-of-signal output set to a false state during the third
3 mode of operating the device.

1 17. The device of claim 1, wherein the input signal is an optical signal.

1 18. A method of operating a device, comprising:
2 detecting a first signal characteristic in an input signal;
3 transitioning from a first signal detection mode to a second signal detection
4 mode in response to detection of the first signal characteristic in the input signal;

5 detecting in the input signal a second signal characteristic different from
6 the first signal characteristic;
7 transitioning from the second signal detection mode to a third operational
8 mode in response to detection of the second signal characteristic in the input
9 signal.

1 19. The method of claim 18, wherein the steps of detecting the first and
2 second signal characteristics are performed during different respective non-
3 overlapping periods.

1 20. The method of claim 18, wherein the first signal characteristics is a
2 direct current characteristic of the input signal, and the second signal
3 characteristic is selected from the group consisting of: an alternating current
4 characteristic of the input signal; a phase characteristic of the input signal; and a
5 pulse-width characteristic of the input signal.